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## ONLINE DISTRIBUTED PATH ROUTING METHOD AND SYSTEM

### ABSTRACT OF THE DISCLOSURE

A method and apparatus for selecting failure protection paths in a WDM network. The method exploits wavelength reservation sharing potentials presented by non-concurrent failure events on a plurality of links sharing a link in a protection path. Light-weight aggregated link metrics termed "buckets" are used to track wavelength reservations for protection paths on individual links in the network. These buckets are then used to construct protection paths with minimized wavelength consumption. The method is employed on individual networking devices in a distributed manner or is used by a centralized network management system to allocate protection paths.

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